

REMARKS

The Office Action dated February 3, 2005, has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

New claim 13 is submitted. No new matter is added, and no further consideration and/or search is needed. Support for the new claim may be found throughout the specification, for example, on page 8, line 33 to page 11, line 4. Thus, claims 2-7 and 9-13 presently are pending in the application, and are respectfully submitted for consideration.

Claims 2-7 and 9-12 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 6,570,856 (Freeburg et al.) in view of U.S. Patent No. 5,953,336 (Moore et al.). The Office Action took the position that Freeburg taught all the elements of the claims, except “reserving transmission resources for handling non-real time traffic dynamically based on a knowledge of overall available transmission resources of a radio transceiver device of said radio access network and the information related to the transmission resources required for handling real time traffic by said radio transceiver.” The Office Action then alleged that Moore taught those features of the claims missing from Freeburg. Applicants respectfully traverse the obviousness rejection and submit that the cited references of Freeburg and Moore, either alone or in combination, fail to disclose or suggest all the features of any of the presently pending claims

Claim 9, upon which claims 2-7 and 10 are dependent, recites a method for controlling transmission resources of a radio access network adapted to transmit data packets in real time traffic and in non-real time traffic. The method includes obtaining information related to transmission resources required for handling real time traffic in a radio network controller. The method also includes reserving transmission resources for handling non-real time traffic dynamically based on a knowledge of overall available transmission resources of a radio transceiver device of the radio access network and the information related to the transmission resources required for handling real time traffic by the radio transceiver. The respectively allocated reserved transmission resources are distinguished on the basis of ATM virtual path identifiers and virtual channel identifiers.

Claim 11 recites a radio access network control device configured to obtain information related to transmission resources required for handling real time traffic in a radio network controller. The radio access network control device also is configured to reserve transmission resources for handling non-real time traffic dynamically based on a knowledge of overall available transmission resources of a radio transceiver device of the radio access network and the information related to the transmission resources required for handling real time traffic by the radio transceiver. The respectively allocated reserve transmission resources are distinguished on the basis of ATM virtual path identifiers and virtual channel identifiers.

Claim 12 recites a radio network control device. The radio network control device includes obtaining means for obtaining information related to transmission resources

required for handling real time traffic in a radio network controller. The radio network control device also includes reserving means for reserving transmission resources for handling non-real time traffic dynamically based on a knowledge of overall available transmission resources of a radio transceiver device of the radio access network and the information related to the transmission resources required for handling real time traffic by the radio transceiver. The respectively allocated reserve transmission resources are distinguished on the basis of ATM virtual path identifiers and virtual channel identifiers.

As discussed in the specification, examples of the present invention enable the removal of a need for heavy channel activation signaling on slow control channels before each channel allocation procedure. For example, the base station and the radio network controller (RNC) know about the resources that may be used for non-real time traffic such that resources may not need to be reserved on a per bearer basis. Thus, virtual channels also may not have to be reserved on a per bearer basis. Applicants respectfully submit that the cited references fail to disclose or suggest the elements of any of the presently pending claims. Therefore, the cited references fail to provide the critical and unobvious advantages discussed above.

Freeburg relates to a method of handoff between base stations in a wireless communications system. Freeburg describes the controlling of handoff resources, or switching between communication paths/communication legs. In connection with the handoff, Freeburg describes the use of ATM connections, such that real time and non-real time service categories are carried. Freeburg also describes that ATM uses virtual

channel connections (VCCs) or virtual path connections (VPCs). Referring to Figure 14 of Freeburg, a mobile station 30 is shown. A cell stream 700 is shown that is the activity in real time on the downlink of the first ATM radio channel 31. In Figure 14, bursts 706 and 715 contain cells having the same VPI and VCI (connection A) and bursts 703, 704, 712 and 713 contain cells having another VPI and VCI (connection B). Cell stream 720 also is shown as the activity in real time on the downlink of the second ATM radio channel 32. Bursts 726 and 735 show another independent connection on the channel (connection C). Thus, Freeburg describes using the VPI's/VCI's to distinguish the respective connections A, B and C.

Moore relates to a method and apparatus for source rate pacing in an ATM network. Moore describes scheduling the transmission of cells onto an ATM, or other packet switching, network. A timing ring contains entries dynamically allocated for the transmission of packets in virtual circuits. An entry on the timing ring represents an available time slot for transmission of a single cell or packet. When a dynamically allocated entry for a particular virtual circuit is processed, the next transmission of a packet on that virtual circuit is scheduled by dynamically allocating another entry on the timing ring. The timing ring also contains entries statically preallocated for the transmission of packets of other virtual circuits, typically CBR and real-time VBR circuits. Referring to Figure 4 of Moore, a flow diagram for the processing of ring entries on timing ring 300 is shown. Microprocessor 120 reads both a static field and a dynamic field of the current ring entry 305. Microprocessor 120 first checks the dynamic field 320

to determine if it contains a pointer to a queue of dynamic actions that have not become current. If so, microprocessor 120 moves to block 430, where the entire queue of dynamic actions is placed into another data structure, known as the Latent Queue, because dynamic actions are only processed from the Latent Queue. A dynamic action's presence on timing ring 300 indicates the moment at which that action may be moved to the Latent Queue and enabled for processing.

Applicants submit that the cited references fail to disclose or suggest reserving transmission resources for handling non-real time traffic dynamically based on a knowledge of overall available transmission resources of a radio transceiver device and the information related to the transmission resources required for handling real time traffic by the radio transceiver, wherein the respectively allocated reserved transmission resources are distinguished on the basis of ATM virtual path identifiers and virtual channel identifiers. Applicants submit that the cited references describe the virtual channels being reserved on a per bearer basis. The cited references fail to disclose or suggest the base station or RNC knowing about the resources that can be used for non-real time traffic, and reserving these resources dynamically.

For example, referring to Freeburg, handoff resources are controlled to switch between communication paths or communication legs. VPIs and VCIs of Freeburg are used to denote a respective connection as a point-to-(multi)point connection. Freeburg, however, does not disclose or suggest handling real time or non-real time traffic resources on a connection. Instead, Freeburg describes distinguishing the respective

connections, such as connections A, B and C, and fails to disclose or suggest using partitioned resources for real time or non-real time traffic. Thus, applicants submit that Freeburg fails to disclose or suggest that respectively allocated reserved transmission resources are distinguished on the basis of ATM virtual path identifiers and virtual channel identifiers.

Applicants also submit that Freeburg fails to disclose or suggest reserving transmission resources for handling non-real time traffic dynamically based on a knowledge of overall available transmission resources and the information related to the transmission resources required for handling real time traffic. Applicants submit that Freeburg does not describe resource partitioning in terms of swapping resources between real time and non-real time services. Instead, Freeburg states "for real time service categories, the logic unit 520 and processor 530... control the rate R at which ATM cells are transferred across interface 535," and "if ATM cells arrive at the logic unit at a rate faster than R, then the cells are stored in FIFO 540 (or in RAM 531) until they are able to be consumed at the interface 535." Freeburg, column 15, lines 3-11. In other words, applicants submit that Freeburg describes that the real time transmission resources, once they are allocated, are not expanded by cutting non-real time resources, but that an excess demand for real time transmission is buffered and transmitted only upon subsequent resource availability. Thus, applicants submit that Freeburg fails to disclose or suggest reserving transmission resources for handling non-real time traffic dynamically based on

a knowledge of overall available transmission resources and the information related to the transmission resources required for handling real time traffic by a radio transceiver.

Applicants further submit that Moore, either alone or in combination with Freeburg, fails to disclose or suggest those features of the pending claims, as discussed above, missing from Freeburg. For example, applicants submit that Moore describes scheduling the transmission of cells onto a network. Moore describes dynamic scheduling apart from a pre-allocated static scheduling. Applicants submit that the dynamic scheduling of Moore fails to disclose or suggest any resource partitioning because the scheduling relies on partitioned resources and merely decides when the resources are made available to a transmitter. Referring to Moore, a dynamic action's presence on timing ring 300 only indicates the moment at which that action may be moved and enabled for processing. Thus, applicants submit that Moore fails to disclose or suggest those features of the pending claims missing from Freeburg.

Further, applicants submit that Moore describes controlling transmission resources by controlling available bandwidth. For example, Moore describes that a CBR virtual circuit is granted a permanent allocation of bandwidth, and a VBR has an average bandwidth, whereas ABR virtual circuits have a defined bandwidth range. Applicant submits that Moore fails to disclose or suggest that any of the allocated bandwidth is reallocated dynamically. Thus, applicant submits that Moore fails to disclose or suggest reserving transmission resources for handling non-real time traffic dynamically based on

a knowledge of overall available transmission resources and the information related to the transmission resources required for handling real time traffic.

Applicants also submit that the cited references' failure to disclose or suggest these features of the pending claims results in longer activation or deactivation procedures and a less efficient use of resources. Referring to page 3, lines 6-17 of the present application, the specification states, for example, "in case of data packets to be transmitted in either real time or non-real time, respective channel activation and/or deactivation procedures had to be performed. Such procedures are, however, time consuming which causes a drawback for the data packet allocation functionality in CDMA and/or WDMA systems, since they had for example to rely on slow common control channels on the Iub interface. Moreover, due to the beforehand division of channels into real time and non-real time channels, physical resources often remained unused which limited the maximum possible traffic amount handled by the network." The cited references, due to their reliance on reserving on a per bearer basis, may suffer from these drawbacks. Thus, applicants submit that neither of the cited references disclose or suggest reserving dynamically resources for non-real time traffic based on knowledge of reserved real time traffic resources, and then deallocating reserved transmission resources that are distinguished on the basis of ATM VPIs and VCIs.

In contrast, claim 9 recites "reserving transmission resources for handling non-real time traffic dynamically based on a knowledge of overall available transmission resources of a radio transceiver device of said radio access network and the information

related to the transmission resources required for handling real time traffic by said radio transceiver, wherein the respectively allocated reserved transmission resources are distinguished on the basis of ATM virtual path identifiers and virtual channel identifiers." Claim 11 recites a radio access network control device being configured to "reserve transmission resources for handling non-real time traffic dynamically based on a knowledge of overall available transmission resources of a radio transceiver device of said radio access network and the information related to the transmission resources required for handling real time traffic by said radio transceiver, wherein the respectively allocated reserve transmission resources are distinguished on the basis of ATM virtual path identifiers and virtual channel identifiers." Claim 12 recites the features of claim 1, as well as other patentable features, but is drawn to a radio access network control device. Applicants submit that the cited references, either alone or in combination, fail to disclose or suggest at least these features of the presently pending claims for the reasons discussed above.

With regard to the dependent claims, applicants submit that these claims are distinguishable over the cited references for at least the reasons discussed above, and because the dependent claims also include additional patentable subject matter. Specifically, the cited references fail to disclose or suggest all the features of claims 2-7, and 10. Thus, for at least these reasons, applicants respectfully submit that the cited references fail to disclose or suggest all the features of claims 2-7 and 9-12. Applicants respectfully request that the obviousness rejection be withdrawn.

Applicants also submit that new claim 13 recites some of the features discussed above and is allowable at least for the same reasons given above. Further, claim 13 includes additional patentable subject matter and is drawn to a radio transceiver device. Applicants respectfully request that claim 13, like claims 2-7 and 9-12, be allowed.

Applicants respectfully submit that the cited references, either alone or in combination, fail to disclose or suggest all the features of each of claims 2-7 and 9-13. Therefore, applicants respectfully request that claims 2-7 and 9-13 be allowed and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'William F. Nixon', written over a horizontal line.

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Enclosure: Extra Claim Fee Transmittal

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